

What Is Claimed Is:

1. A radar sensor for motor vehicles, having a transmitter and receiver unit (16, 20, 22) whose directional characteristic has multiple lobes (28, 30), at least one of which (28) is directed parallel to the roadway surface (12), wherein at least one other lobe (30) is directed obliquely to the roadway surface.
2. The radar sensor as recited in Claim 1, characterized by a condenser element in the form of a lens (16) or a reflector which bundles the emitted radar waves into the lobes (28, 30).
3. The radar sensor as recited in Claim 2, wherein the transmitter and receiver unit has multiple radar sources (20, 22) which are situated offset with respect to one another approximately in the focal plane of the shared condenser element (16), one of which (22) generates the lobe (30) directed obliquely to the roadway surface (12).
4. The radar sensor as recited in Claim 2, wherein the condenser element (16) is designed as a beam splitter which deflects a portion of the emitted radar waves into the lobe (30) which is directed obliquely to the roadway surface (12).
5. The radar sensor as recited in one of Claims 2 through 4, wherein the condenser element (16) has a different focal distance for the lobe (30) which is directed obliquely to the roadway surface (12) than for the other lobes (28).
6. The radar sensor as recited in one of Claims 2 through 5, wherein the condenser element is a lens (16) which has a lens zone (34) having refraction characteristics that differ from the rest of the lens.
7. A method for the radar measurement of the ground speed ( $v_F$ ) of a motor vehicle,

characterized by the use of a radar sensor (10; 32) as recited in one of the preceding claims.

8. A method for checking the alignment of a radar sensor (10; 32) as recited in one of Claims 1 through 6, wherein the distance (d) between the radar sensor (10; 32) and the point of incidence (P) of the lobe (30), which is directed obliquely to the roadway surface, on the roadway surface (12) is measured, and a misalignment of the radar sensor is determined based on a deviation of the measured distance (d) from a vehicle-specific nominal value.

9. A method for blindness recognition for a radar sensor (10; 32) as recited in one of Claims 1 through 6, wherein the intensity of the radar echo reflected by the roadway surface is measured for the lobe (30) which is directed obliquely to the roadway surface (12).

10. A combination of the methods as recited in at least two of Claims 7 through 9.